

54 Arrangement for measuring the internal body temperature of humans and animals

The known devices for determining the body temperature of animals and humans, in particular for determining the body temperature of women, which serve the purpose of detecting temperature fluctuations, and hence ovulation, are easily affected by the environment when they are in the form of a wristwatch, and, when they have a temperature sensor which can be inserted into the vagina, can only be applied with some difficulty. The arrangement according to the invention for measuring the internal body temperature of humans and animals has a resonant circuit which can be placed on the skin and can be excited by the thermal oscillations of endogenous substances, and which comprises an inductance and a capacitance and has a voltmeter arranged between the terminals of the inductance. Such an arrangement is affected by the environment to a much lesser extent and, at least when it is in the form of a watch, is simple and comfortable to put on.

thermometer which can be placed on the skin, and which is still as simple to apply and as discreet to wear as the known device in the form of a wristwatch.

5 This object is essentially achieved by an arrangement of the type mentioned in the introduction, having a resonant circuit which can be placed on the skin and can be excited by the thermal oscillations of endogenous substances, and which comprises an inductance and a capacitance as well as a voltmeter
10 arranged between the terminals of the inductance.

The thermal oscillations of the atoms or molecules or else radicals in the endogenous substances excite the resonant circuit, in which a resonant frequency is produced at the frequencies of the atoms
15 or molecules or radicals and their voltage between the terminals of the inductance can be ascertained using the voltmeter.

On account of the fact that the voltage rises as the temperature rises, relatively slight
20 fluctuations in the body temperature can be detected in this way. Alternatively, if such an arrangement is used to take sample readings from the body, it is possible to detect areas in which the temperature is possibly higher on account of inflammatory processes.

25 A suitable inductance is, advantageously, a stripline inductor, while the capacitance used can be a capacitor. The voltmeter should have a microwave amplifier to simplify measurement. A selective amplifier, which allows desired ranges to be selected,
30 can also be provided in this case. The amplifier should have a rectifier connected downstream of it. If an AC voltmeter is used, the rectifier can be dispensed with, however.

It is advantageous to set the arrangement to
35 thermal oscillations of hydrogen or oxygen or carbon, particularly of hydrogen.

The arrangement should be in the form of a circlet which can be placed around the body, e.g. in

the form of a circlet which can be placed around one of the limbs.

The voltmeter is advantageously connected to a display which shows the measured values. This allows
5 another microprocessor connected to the voltmeter and to the display to be provided, said microprocessor converting the measured voltage into temperature and passing it to the display. It is then possible to enter, and possibly store, not only the respectively
10 measured body temperature in the microprocessor but also externally determined characteristic temperature values, e.g. those characteristic of ovulation in women. In addition, temperature measurement instants and/or temperature measurement intervals can also be
15 entered in the microprocessor. The display should allow all these values to be shown. The voltmeter, the microprocessor and the display and, possibly, a clock section and maybe a battery can be arranged in a housing connected to the circlet. In addition, there
20 can also be a signal generator, preferably an acoustic one, which is advantageously inserted into the housing as well.

Patent claims

1. Arrangement for measuring the internal body temperature of humans and animals,
5 characterized by
a resonant circuit which can be placed on the skin and can be excited by the thermal oscillations of endogenous substances, and which comprises an inductance and a capacitance and a voltmeter arranged
10 between the terminals of the inductance.
2. Arrangement according to Claim 1, characterized by a stripline inductor.
3. Arrangement according to Claim 1 or 2, characterized by a capacitor as the capacitance.
- 15 4. Arrangement according to one or more of Claims 1 to 3, characterized by a voltmeter having a microwave amplifier.
5. Arrangement according to one or more of Claims 1 to 4, characterized by a voltmeter having a
20 selective amplifier.
6. Arrangement according to one or more of Claims 1 to 5, characterized by a rectifier connected downstream of the amplifier.
7. Arrangement according to one or more of
25 Claims 1 to 5, characterized by an AC voltmeter.
8. Arrangement according to one or more of Claims 1 to 7, characterized in that it is set to the wavelength of the thermal oscillations of hydrogen or oxygen or carbon.
- 30 9. Arrangement according to one or more of Claims 1 to 8, characterized in that it is in the form of a circlet which can be placed around the body.
10. Arrangement according to Claim 9, characterized in that it is in the form of a circlet which can be
35 placed around one of the limbs.
11. Arrangement according to one or more of Claims 1 to 10, characterized by a display which is connected to the voltmeter.

12. Arrangement according to Claim 11, characterized by a microprocessor which is connected to the voltmeter and the display, converts the measured voltage into temperature and passes it to the display.

5 13. Device according to Claim 12, characterized in that the voltage measured by the voltmeter and, externally, the characteristic temperature values of a person can be entered and stored in the microprocessor.

10 14. Device according to Claim 12 or 13, characterized in that temperature measurement instants and/or temperature measurement intervals can be entered and stored in the microprocessor.

15 15. Device according to one of Claims 12 to 14, characterized in that the display can be used to show the current body temperature and the temperature values, temperature measurement instants and/or temperature measurement intervals which have been entered externally in the microprocessor and stored.

20 16. Device according to Claim 9 or 10, characterized in that the circlet bears a housing which contains the voltmeter, the microprocessor and the display.

25 17. Device according to Claim 16, characterized in that the housing contains a battery as a source of energy.

18. Device according to Claim 16 or 17, characterized in that the housing contains a clock section.

30 19. Device according to one or more of Claims 16 to 18, characterized in that the display is connected to a preferably acoustic signal generator which is advantageously arranged in the housing.